

No.

200300155



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Rutgers, The State University of New Jersey

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE FOREGOING PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

FESCUE, TALL

'SR8550'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this twelfth day of September, in the year two thousand and seven.

Attest:

Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

Secretary of Agriculture



## Exhibit A:

## Origin and Breeding History

~~SR8550~~  
~~BE-4~~ Tall Fescue  
 (BT:8/4/2006)

~~SR8550~~  
~~BE-4~~ tall fescue (*Festuca arundinacea* Schreb.) is a medium low-growing, medium-dark green, fine-leaved, turf-type tall fescue selected from the maternal progenies of 36 clones. BE-4 was selected for better establishment and medium maturity. Approximately 56% of the parental germplasm in BE-4 contain the Neotyphodium endophyte.

The parental germplasm of BE-4 tall fescue traces its origin to plants selected from old turfs of the United States in a germplasm collection program initiated in 1962, to plants selected from or related to Rebel tall fescue (Funk et al., 1981). Attractive clones were selected from old turfs in Birmingham, AL; Athens, Atlanta, and Milledgeville, GA; Preston, ID; Baltimore, MD; Bayonne, Jersey City, Elizabeth, Princeton, and Cape May, NJ; eastern North Carolina; Philadelphia, PA; Nashville, TN; Lexington, KY; Cincinnati, OH; Dallas, TX; and northern Mississippi. The tall fescue plants selected from old turfs were of unknown origin. All were large patches of turf surviving in stressful environments indicating that they had persisted and developed over a period of many years.

A few hundred attractive, turf-type plants were collected and established in spaced-plant nurseries and/or frequently mowed clonal evaluation trials at Rutgers University. All but a few dozen of the most promising plants were quickly discarded. The best selections were very different from any tall fescue variety in existence at the time of collection. They produced lower-growing turfs with finer leaves, greater density, darker color, and greater tolerance of close mowing.

The most promising plants were identified by their persistence and appearance in old turfs and their performance in spaced-plant nurseries, mowed clonal evaluation tests, and single-plant progeny trials under turf maintenance. Intercrosses of the best performing plants were subjected to varying cycles of phenotypic and genotypic selection depending on their date of collection. New sources of germplasm were added to the breeding program as it became available from the continuing collection program. Each cycle of selection showed continued progress in producing lower-growing, darker green, attractive plants with improved turf performance scores. Selection was also effective in maintaining high seed yields and good stress tolerance. Substantial progress was made in developing

tall fescues with finer leaves, a lower growth profile, increased persistence under close mowing, and increased density.

Large numbers of single-plant progenies were seeded in turf evaluation trials at the Plant Science Research Farm at Adelphia, NJ in 1995, 1996 and 1997. The plants selected for progeny evaluation were selected from spaced-plant nurseries at Adelphia following varying cycles of phenotypic and genotypic selection of germplasm selected from old turfs and germplasm selected from or related to Rebel tall fescue.

Following the establishment, a period of leaf spot disease, and weekly rolling in 1997, a total of 4,020 tillers were selected from 26 of the best performing single-plant progeny turf plots from the 1997 tall fescue test at Adelphia. These progenies were selected out of 1300 plots from 14 different populations from the 1997 test. In addition to the 4,020 plants, six-hundred plants were selected from the medium maturing, best performing turf plots from the 1995 and 1996 tall fescue test at Adelphia. Thirteen single-plant progeny turf plots were selected from the 1995 test, and 17 from the 1996 tall fescue test at Adelphi. These were chosen from 2,085 plots from 21 different populations. These plants were established in greenhouse flats prior to their transfer to a spaced-plant nursery in the spring of 1998. Selection was based on performance records as well as appearance at the time the plants were selected from these progeny plots. Selection of plants from each progeny was based on an attractive dark green color, medium-fine leaves, abundant tillering and freedom from disease. In the spring of 1999, forty-eight plants were selected from those nurseries for characteristics such as late maturity, dark green color, high shoot density, semi-dwarf growth habit and freedom from disease. The selected plants were moved prior to anthesis, to and isolated crossing block at Adelphia. A total of thirty-two plants with the best floret fertility and highest seed yield from twenty-three different mother lines were harvested. In the fall of 1999, one turf plot of each line was established at Adelphia.

In the fall of 1999 a seed increase block containing 60 plants of 38 progeny lines (2,280 plants) was established in Albany, OR. In 1999 negative mass selection was used and 2% of the plants were rogued from the population. The remaining plants were harvested in bulk and the seed was used to establish a morphological nursery for Plant Variety Protection (PVP) measurements.

**Diagram of Origin and Breeding History of BE-4 Tall Fescue**

- 1962 - 1994: Germplasm collection, evaluation, and genetic improvement.
- 1995 - 1997: Planted single-plant progenies of plants selected from current cycles of population improvement programs in closely mowed turf trials at Adelphia and North Brunswick, NJ.
- 1998: Selected 4,020 plants from 56 of the best performing single-plant progeny turf plots planted in 1995, 1996, and 1997. Established selected plants in a spaced-plant nursery at Adelphia, NJ.
- 1999: Moved 48 plants to an isolated crossing block. Harvested from 40 plants with excellent appearance and floret fertility.
- Each plant of BE-4 traces at least 20 percent of its ancestral germplasm to plants selected from or related to Rebel tall fescue and at least 80 percent to plants collected from old turf areas of the United States as part of a germplasm collection program initiated in 1962.
- 2000: ~~BE-4~~<sup>SR8550</sup> was planted in a PVP morphological nursery at Advanta Seeds Pacific, Albany, OR.  
(ST: 8/4/2006)

## 2. Breeder Seed Maintenance:

A breeder seed multiplication was planted in isolation in 1999 in Albany, Oregon. Seed was harvested in bulk in 2000 and is maintained in cold storage. Seed propagation is limited to three generations, one each of foundation, registered, and certified.

## 3. Stability and Uniformity:

~~BE-4~~ <sup>SR8550</sup>

~~BE-4~~ has been a stable uniform cultivar over two generations. No off-type or variant plants  
(BT: 8/4/2006)

have been observed during the multiplication or reproduction. During the breeder seed multiplication 2% of the plants were removed. These types were not observed during the

subsequent generations. Turf plots of ~~BE-4~~ <sup>SR8550</sup> have been uniform and stable.  
(BT: 8/4/2006 per applicant's authorization).

## References

1. Buckner, Robert C., Jerrell B. Powell, and Rod V. Frakes. 1979. Historical Development, in Buckner, Robert C., and Lowell P. Bush (editors) tall fescue. Agronomy Monograph 20. American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Inc., Publisher. Madison, WI, pages 1 - 8.
2. Funk, C. R., R. E. Engel, W. K. Dickson, and R. H. Hurley. 1981. Registration of Rebel tall fescue. Crop Science 21:632.

**Exhibit B:**  
**SR8550**  
**Novelty Statement of BE-4 Tall Fescue**  
**(BT: 8/4/2006)**

SR8550  
(BT: 8/4/2006)

The following summary outlines the distinctive characteristics of BE-4. The novelty of BE-4 is based on the unique combination of these characteristics. BE-4 is most similar to Rebel II, but may be differentiated by using the following criteria:

- SR8550
- (BT: 8/4/2006)
1. The genetic color of BE-4 is darker compared to Rebel II (tables 1A, 1B).
  2. BE-4 has a mature plant height at least 37 cm shorter than Rebel II (tables 1A, 1B).
  3. The flag leaf characteristics for BE-4; height, length, width, sheath length and internode length are all less compared to Rebel II (tables 1A, 1B).
  4. The panicle length is at least 17 cm shorter for BE-4 compared to Rebel II (tables 1A, 1B).
  5. The leaf blade characteristics for BE-4; height, length, sheath length and width are all less compared to Rebel II (tables 1A, 1B).
  6. The length of the panicle from the lower most whorl to the apex is shorter for BE-4 than Rebel II (tables 2A, 2B, illus. 1).
  7. ~~BE-4~~ <sup>SR8550</sup> has a lemma, palea and glume length that is less than Rebel II (tables 2A, 2B).  
 (BT: 8/4/2006)

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**U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE AND TECHNOLOGY PROGRAM  
PLANT VARIETY PROTECTION OFFICE  
BELTSVILLE, MD 20705**

**EXHIBIT C  
(TALL & MEADOW FESCUES)**

**OBJECTIVE DESCRIPTION OF VARIETY  
TALL & MEADOW FESCUES  
(*Festuca* spp.)**

|  |   |   |
|--|---|---|
| NAME OF APPLICANT(S) <u>Rutgers, The State University of New Jersey</u><br>(BT: 8/4/06) <u>Dr. William Meyer</u> | TEMPORARY DESIGNATION<br><u>&lt;BE-4&gt; &lt;SR8550&gt;</u><br>(BT: 8/4/06) | VARIETY NAME<br><u>SR8550</u><br>(BT: 8/4/2006) |
|--|---|---|

|  |  |
|--|--|
| ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code)<br>Foran Hall<br>Plant Biology & Pathology Dept.<br>59 Dudley Road<br>New Brunswick, NJ 08901 | FOR OFFICIAL USE ONLY<br>PVPO NUMBER<br><u>200300155</u> |
|--|--|

Place the appropriate number that describes the varietal characteristics of this variety in the boxes below. Use leading zeroes when necessary (e.g. 089). Characteristics described, including numerical measurements, should represent those that are typical for the variety. Measured data should be for SPACED PLANTS. Royal Horticultural Society or any recognized color fan may be used to determine plant colors. Characteristics marked with an asterisk \* are characteristics which should be recorded.

\* 1. SPECIES: (With comparison varieties, use varieties within the species of the application variety)

  X   1 = *F. arundinacea* (Tall)

**Turf Types**

|                 |               |               |                   |              |              |
|-----------------|---------------|---------------|-------------------|--------------|--------------|
| 1 = Kentucky 31 | 2 = Rebel     | 3 = Olympic   | 4 = Bonanza       | 5 = Arid     | 6 = Rebel II |
| 7 = Shortstop   | 8 = Silverado | 9 = Rebel Jr. | 10 = Mini Mustang | 11 = Crewcut | 12 = Bonsai  |

**Forage Types**

|                  |                 |              |             |
|------------------|-----------------|--------------|-------------|
| 20 = Kentucky 31 | 21 = Martin     | 22 = Forager | 23 = Mozark |
| 24 = Kenhy       | 25 = AU Triumph | 26 = Fawn    | 27 = Cajun  |

       2 = *F. pratensis* (Meadow)

|             |               |               |             |             |
|-------------|---------------|---------------|-------------|-------------|
| 30 = Admira | 31 = Beaumont | 32 = Comtessa | 33 = Ensign | 34 = Trader |
|-------------|---------------|---------------|-------------|-------------|

\* 2. CYTOLOGY:

       42        Chromosome Number

3. ADAPTATION: (0 = Not Tested; 1 = Not Adapted; 2 = Adapted)

  2   Transition Zone     2   West     2   Northeast          Other (Specify):       

\* 4. MATURITY: (Date First Headed, 10% of Panicle Emergence)

  7   Maturity Class   1 = Very early (   )   2 = AU Triumph   3 = Early (Fawn)   4 = K31, Kenhy   5 = Medium (Rebel)

4. MATURITY: (continued)

6 = Bonanza

7 = Late (Silverado)

8 = ( )

9 = Very late

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Date Headed 42.33 days after April 1, \_\_\_\_\_

Location Albany, OR \_\_\_\_\_

\_\_\_\_\_ Days earlier than \_\_\_\_\_

Maturity same as \_\_\_\_\_

8.00 Days later than 6

Comparison Variety

\* 5. MATURE PLANT HEIGHT CM: (Average of 100 culms from crown to top of panicle, if panicle is nodding, straighten)

97.53 cm Height

37.44 cm Shorter than 6

Height same as \_\_\_\_\_

\_\_\_\_\_ cm Taller than \_\_\_\_\_

Comparison Variety

\* INTERNODE LENGTH CM: (First internode subtending the flag leaf)

11.57 cm InternodeLength

8.70 cm Shorter than 6

Length same as \_\_\_\_\_

\_\_\_\_\_ cm Longer than \_\_\_\_\_

Comparison Variety

\* HEIGHT AT EAR EMERGENCE CM: (Flag leaf height from crown to flag leaf node)

31.10 cm Height

25.10 cm Shorter than 6

Height same as \_\_\_\_\_

\_\_\_\_\_ cm Taller than \_\_\_\_\_

Comparison Variety

\* 6. GROWTH HABIT: (Mature Plants)

7 1 = Prostrate ( )

3 = Semiprostrate ( )

5 = Horizontal ( )

7 = Semierect (Rebel)

9 = Erect (Mini Mustang)

\* 7. RHIZOMES (Psuedo):

\_\_\_\_\_ mm Length

1 1 = Absent ( )

2 = Rare (Rebel)

3 = Common ( )

\* 8. LEAF BLADE: (Tiller leaves/ turf color)

\* 7 Color: 1 = Light green ( )

3 = Medium light green ( )

5 = Green ( )

7 = Medium dark green ( )

9 = Very dark green ( )

5 Specify rating of comparison variety

\* 1 Anthocyanin: 1 = Absent ( )

9 = Present ( )

\* 1 Basal Hairs: 1 = Absent ( )

9 = Present ( )

\* 1 Margins: 1 = Smooth ( )

5 = Semi-rough ( )

9 = Rough ( )

## 8. LEAF BLADE: (continued)

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\*\_7\_ Width Class: 1 = Very coarse ( ) 3 = Coarse ( ) 5 = Medium ( )

7 = Fine ( ) 9 = Very Fine ( )

\* TILLER LEAF LENGTH CM: (First leaf subtending the flag leaf)

\* TILLER LEAF WIDTH MM:

\_24.77\_ cm Tiller Leaf Length

\_6.90\_ mm Tiller Leaf Width

\_13.60\_ cm Shorter than \_6\_

\_1.60\_ mm Narrower than \_6\_

Length same as \_\_\_\_

Width same as \_\_\_\_

\_\_\_\_ cm Taller than \_\_\_\_

\_\_\_\_ mm Longer than \_\_\_\_

Comparison Variety

Comparison Variety

FLAG LEAF LENGTH CM:

FLAG LEAF WIDTH MM:

\_37.13\_ cm Flag Leaf Length

\_5.8\_ mm Flag Leaf Width

\_14.17\_ cm Shorter than \_6\_

\_1.00\_ mm Narrower than \_6\_

Length same as \_\_\_\_

Width same as \_\_\_\_

\_\_\_\_ cm Longer than \_\_\_\_

\_\_\_\_ mm Wider than \_\_\_\_

Comparison Variety

Comparison Variety

\* 9. LEAF SHEATH: (Basal Portion)

\*\_1\_ Anthocyanin (seedling): 1 = Absent (K31)

9 = Present ( )

\*\_9\_ Auricle Hairiness: 1 = Absent ( )

9 = Present ( )

\* 10. PANICLE: (At seed maturity except where noted.)

\*\_5\_ Shape: 1 = Narrow-tapering ( )

5 = Ovate ( )

7 = Oblong ( )

9 = Other (specify)

\*\_5\_ Type: 1 = Compact (appressed)

5 = Intermediate ( )

7 = Open ( )

9 = Other (specify)

\*\_9\_ Orientation: 1 = Nodding ( )

9 = Erect ( )

\*\_ Branch Pubescence: 1 = Glabrous ( )

9 = Pubescent ( )

\*\_1\_ Anther Color (At anthesis): 1 = Yellowish Green

2 = Green

3 = Bluish Green

4 = Purplish

5 = Reddish

6 = Other (Specify)

\*\_1\_ Glume Color (At anthesis): 1 = Yellowish Green

2 = Green

3 = Bluish Green

4 = Purplish

5 = Reddish

6 = Other (Specify)

\*\_65.53\_ cm Panicle Length (from base to tip, if nodding, straighten; after anthesis)

\_17.87\_ cm Shorter than \_6\_

Length same as \_\_\_\_

\_\_\_\_ cm Longer than \_\_\_\_

Comparison Variety

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} Comparison Variety

} Comparison Variety     
 \_\_\_\_ mm Narrower than \_\_\_\_ } Comparison Variety  
   
 Width same as      -6- }  
 \_\_\_\_ mm Wider than \_\_\_\_ }

} Comparison Variety

## 0 Other Nematode

Shade Stress      1 = Susceptible (    )      5 = Tolerant (    )      9 = Resistant (    )

## 13. ENVIRONMENTAL STRESS: (continued)

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\_6\_ Winter Stress      1 = Susceptible ( )      5 = Tolerant ( )      9 = Resistant ( )

14. GIVE VARIETY OR VARIETIES THAT MOST CLOSELY RESEMBLE THE APPLICATION VARIETY. For the following characteristics, indicate the degree of resemblance with the following scale:

1 = Application variety is less than comparison variety    2 = Same as    3 = More than, better, greater, darker, etc.

| Character     | Varieties | Rating | Character     | Varieties | Rating |
|---------------|-----------|--------|---------------|-----------|--------|
| Leaf Width    | Rebel II  | 2      | Leaf Color    | Rebel II  | 3      |
| Panicle Color | Rebel II  | 2      | Panicle Shape | Rebel II  | 2      |
| Seed Size     | Rebel II  | 1      | Cold Injury   | Rebel II  | 2      |
| Winter Color  | Rebel II  | 3      | Heat          | Rebel II  | 2      |
| Disease       | Rebel II  | 3      |               |           |        |

\* 15. EXPERIMENTAL: Give a brief summary of the experimental design utilized to collect the data used on this form. Cultural conditions, number of plants measured and plant spacing must be specified.

A morphological nursery designated 00PVPFA was established in September 2000, in Albany, Oregon. Experimental design consisted of 18 entries; 3 replications per entry; 20 plants per replication; for a total of 60 plants per entry. KY-31, Rebel II and Plantation were used as standards. Plants were established on 2.5 foot centers with a skip row between replications and between entries.

The nursery received 30 pounds of nitrogen per acre rate following establishment and 50 pounds of nitrogen per acre per year in 2001 and 2002. The fertilizer source was 15 - 15 - 15 and was applied as a split application with ½ applied in the spring and ½ in the autumn. The nursery was sprayed twice each spring, 3 weeks between applications, with Tilt (2oz/acre rate), to prevent stem rust. One pound of Karmex per acre rate was applied during the late summer to prevent emergence of volunteer seedlings.

Data was analyzed using analysis of variance for a randomized complete block design. Means were calculated for each replication and then analyzed.

**Exhibit D:****Additional Description**

SR8550  
~~BE-4~~ Tall Fescue  
 (BT:8/4/2006)

SR8550 (BT:8/4/2006)

~~BE-4~~ is an improved turf-type tall fescue. It has a shorter mature plant height (tables 1A, 1B) than previously released tall fescue cultivars, such as KY-31, Plantation and Rebel II. BE-4 has a medium-late maturity with a heading date later than KY-31 and Rebel II (tables 1A, 1B). BE-4 exhibits a darker genetic color compared to KY-31 and Rebel II (tables 1A, 1B). The length of the panicle is shorter for BE-4 compared to KY-31, Plantation and Rebel II (tables 1A, 1B). The flag leaf characteristics; length, height, sheath length and internode length are all shorter for BE-4 compared to KY-31, Plantation and Rebel II (tables 1A, 1B). The leaf blade characteristics; length, width, height, and sheath length are shorter for BE-4 compared to KY-31, Plantation and Rebel II (tables 1A, 1B). BE-4 has a shorter lemma, palea and glume length compared to KY-31 and Rebel II (tables 2A, 2B). BE-4 has a shorter spikelet length compared to KY-31 (tables 2A, 2B). The distance between the two lower most whorls is shorter for BE-4 compared to KY-31 and Rebel II (tables 2A, 2B, illus. 1). The length of the longest branch of the lower most whorl is shorter for BE-4 compared to KY-31 and Rebel II (tables 2A, 2B). BE-4 has fewer spikelets on the longest branch of the lower most whorl compared to Plantation (tables 2A, 2B, illus. 1). BE-4 has fewer spikelets on the panicle compared to KY-31, Plantation and Rebel II (tables 2A, 2B). The length of the panicle from the lower most whorl to the apex is shorter for BE-4 compared to KY-31 and Rebel II (tables 2A, 2B, illus. 1). BE-4 expressed a higher frequency of purple pigmentation of the panicles compared to KY-31 (tables 3A, 3B). The milligram weight of 1,000 seeds of BE-4 is less compared to KY-31, Rebel II and Plantation (tables 3A, 3B). BE-4 has a more erect growth habit compared to KY-31, Plantation and Rebel II (tables 4A, 4B). BE-4 produces a lower frequency of plants which express smooth margins of the leaf blade compared to KY-31 and Rebel II, but more than Plantation (tables 4A, 4B). The production of dark pigmentation at the nodes is less frequent in BE-4 compared to KY-31, Plantation and Rebel II (tables 4A, 4B).

Table 1A

## 2001 Morphological Data

| Cultivar        | Heading Date<br>(days after April 1) | Anthesis Date<br>(days after April 1) | Genetic Color | Mature Plant Height<br>(cm) | Plant Width<br>(cm) | Panicle Length<br>(cm) | Flag Leaf Length<br>(cm) | Flag Leaf Width<br>(mm) | Flag Leaf Height<br>(cm) | Flag Leaf Sheath Length<br>(cm) | Flag Leaf Internode Length<br>(cm) | Leaf Blade Length<br>(cm) | Leaf Blade Width<br>(mm) | Leaf Blade Height<br>(cm) | Leaf Sheath Length<br>(cm) |
|-----------------|--------------------------------------|---------------------------------------|---------------|-----------------------------|---------------------|------------------------|--------------------------|-------------------------|--------------------------|---------------------------------|------------------------------------|---------------------------|--------------------------|---------------------------|----------------------------|
| SR8550<br><BE4> | 42.33                                | 64.33                                 | 5.52          | 72.27                       | 16.63               | 60.20                  | 30.07                    | 6.10                    | 31.10                    | 18.50                           | 11.57                              | 24.77                     | 7.85                     | 10.47                     | 9.33                       |
| BE1             | 35.67                                | 59.67                                 | 5.18          | 87.33                       | 16.17               | 68.87                  | 34.03                    | 6.48                    | 40.07                    | 20.77                           | 15.57                              | 28.27                     | 8.23                     | 13.57                     | 10.87                      |
| BE2             | 38.33                                | 61.67                                 | 5.32          | 82.63                       | 17.00               | 65.47                  | 32.30                    | 5.23                    | 37.17                    | 20.37                           | 15.07                              | 26.90                     | 7.48                     | 13.83                     | 11.23                      |
| KY-31           | 30.67                                | 59.67                                 | 3.17          | 125.73                      | 18.40               | 91.93                  | 50.53                    | 8.58                    | 63.83                    | 30.80                           | 23.20                              | 43.13                     | 10.13                    | 27.37                     | 17.47                      |
| Rebel II        | 34.33                                | 61.00                                 | 3.68          | 113.23                      | 22.13               | 85.87                  | 46.57                    | 7.92                    | 56.20                    | 28.03                           | 20.27                              | 38.37                     | 9.65                     | 22.33                     | 16.90                      |
| Plantation      | 40.33                                | 63.33                                 | 5.28          | 93.97                       | 18.57               | 72.97                  | 39.87                    | 6.80                    | 44.07                    | 24.13                           | 16.23                              | 34.77                     | 9.12                     | 17.80                     | 14.13                      |
| LSD (0.05)      | 1.95                                 | 1.37                                  | 0.36          | 6.90                        | 1.68                | 4.89                   | 2.92                     | 0.94                    | 4.50                     | 2.00                            | 1.77                               | 2.89                      | 0.79                     | 2.38                      | 1.55                       |
| C.V.            | 3.62                                 | 1.58                                  | 5.27          | 5.58                        | 6.96                | 5.00                   | 5.77                     | 10.18                   | 8.03                     | 6.58                            | 8.48                               | 6.89                      | 6.67                     | 11.28                     | 9.17                       |

Measurements taken in Albany, Oregon; 3 reps; 20 plants/rep = 60 data points.

- Cultivar under evaluation.
- Significant difference over two years one location.
- Significant difference over one year one location.

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Table 1B

## 2002 Morphological Data

(BT:8/4/06)

| Cultivar        | Heading Date<br>(days after April 1) | Anthesis Date<br>(days after April 1) | Genetic Color | Mature Plant Height<br>(cm) | Plant Width<br>(cm) | Panicle Length<br>(cm) | Flag Leaf Length<br>(cm) | Flag Leaf Width<br>(mm) | Flag Leaf Height<br>(cm) | Flag Leaf Sheath Length<br>(cm) | Flag Leaf Internode Length<br>(cm) | Leaf Blade Length<br>(cm) | Leaf Blade Width<br>(mm) | Leaf Blade Height<br>(cm) | Leaf Sheath Length<br>(cm) |
|-----------------|--------------------------------------|---------------------------------------|---------------|-----------------------------|---------------------|------------------------|--------------------------|-------------------------|--------------------------|---------------------------------|------------------------------------|---------------------------|--------------------------|---------------------------|----------------------------|
| SR8550<br><BE4> | 30.33                                | 65.00                                 | 5.63          | 97.53                       | 25.67               | 65.53                  | 37.13                    | 5.80                    | 55.27                    | 23.23                           | 22.50                              | 35.03                     | 6.90                     | 26.30                     | 14.17                      |
| BE1             | 20.00                                | 59.67                                 | 5.60          | 112.93                      | 24.83               | 74.20                  | 43.00                    | 6.52                    | 62.50                    | 25.87                           | 26.30                              | 40.43                     | 7.68                     | 28.80                     | 16.43                      |
| BE2             | 20.67                                | 61.00                                 | 5.63          | 106.63                      | 24.63               | 71.00                  | 38.97                    | 5.87                    | 59.27                    | 24.17                           | 24.23                              | 36.43                     | 7.27                     | 29.47                     | 15.07                      |
| KY-31           | 12.00                                | 58.00                                 | 3.38          | 150.07                      | 24.60               | 93.03                  | 57.10                    | 7.47                    | 92.70                    | 35.67                           | 32.03                              | 54.03                     | 9.85                     | 49.90                     | 22.83                      |
| Rebel II        | 20.67                                | 62.00                                 | 4.32          | 134.97                      | 24.90               | 83.40                  | 51.30                    | 6.80                    | 81.80                    | 32.27                           | 31.23                              | 49.03                     | 8.50                     | 42.70                     | 19.90                      |
| Plantation      | 28.33                                | 64.00                                 | 5.58          | 116.37                      | 24.70               | 75.17                  | 43.97                    | 6.47                    | 67.03                    | 27.73                           | 27.27                              | 42.27                     | 8.15                     | 31.53                     | 17.47                      |
| LSD (0.05)      | 3.21                                 | 1.42                                  | 0.24          | 5.03                        | 1.16                | 4.66                   | 2.54                     | 0.61                    | 3.67                     | 1.14                            | 1.45                               | 2.44                      | 0.65                     | 2.79                      | 0.88                       |
| C.V.            | 4.13                                 | 1.62                                  | 3.33          | 3.24                        | 3.40                | 4.60                   | 4.25                     | 7.02                    | 4.09                     | 3.12                            | 4.10                               | 4.31                      | 6.07                     | 6.38                      | 3.87                       |

(BT:8/4/06)

Measurements taken in Albany, Oregon; 3 reps; 20 plants/rep = 60 data points.

- Cultivar under evaluation.
- Significant difference over two years one location.
- Significant difference over one year one location.

200300155

Table 2A

## 2001 Laboratory Morphological Data

(BT:8/4/06)

| Cultivar                 | Lemma Length (mm) | Lemma Width (mm) | Lemma Awn Length (mm) | Palea Length (mm) | Palea Width (mm) | Glume Length (mm) | Florets per Spikelet | Spikelet Length (mm) | Length of Longest Whorl (mm) | Distance Between Lower Most Whorls (mm) | Number of Spikelets on the Longest Whorl | Spikelets per Panicle | Length of Spike From Lower Most Whorl to Tip (mm) |
|--------------------------|-------------------|------------------|-----------------------|-------------------|------------------|-------------------|----------------------|----------------------|------------------------------|---|--|-----------------------|---|
| <del>SR8550</del><br>BE4 | 5.29              | 1.49             | 2.04                  | 6.22              | 1.37             | 4.58              | 6.00                 | 11.47                | 84.33                        | 46.00                                   | 15.03                                    | 78.00                 | 17.73   |
| BE1                      | 5.63              | 1.50             | 2.07                  | 6.59              | 1.37             | 4.85              | 6.47                 | 12.80                | 98.80                        | 53.57                                   | 17.00                                    | 99.33                 | 21.30   |
| BE2                      | 5.68              | 1.51             | 1.98                  | 6.72              | 1.41             | 5.13              | 7.03                 | 13.10                | 96.47                        | 52.30                                   | 14.30                                    | 85.33                 | 20.50   |
| KY-31                    | 6.16              | 1.56             | 2.15                  | 7.28              | 1.49             | 5.77              | 6.77                 | 13.80                | 115.03                       | 61.87                                   | 15.10                                    | 110.00                | 27.20   |
| Rebel II                 | 5.75              | 1.49             | 2.24                  | 6.99              | 1.40             | 5.11              | 5.80                 | 12.30                | 100.60                       | 58.53                                   | 15.00                                    | 101.00                | 24.33   |
| Plantation               | 5.47              | 1.51             | 2.07                  | 6.48              | 1.35             | 4.71              | 6.08                 | 11.80                | 96.93                        | 54.80                                   | 19.23                                    | 119.33                | 22.57   |
| LSD(.05)                 | 0.27              | 0.08             | 0.19                  | 0.21              | 0.08             | 0.25              | 0.75                 | 0.89                 | 14.06                        | 5.72                                    | 2.69                                     | 9.92                  | 2.09  |
| C.V.                     | 3.53              | 3.66             | 6.55                  | 2.26              | 4.00             | 3.62              | 8.13                 | 5.13                 | 10.51                        | 7.76                                    | 11.99                                    | 7.65                  | 7.04  |

Measurements taken in Albany, Oregon; 3 reps; 20 plants/rep = 60 data points.

- Cultivar under evaluation.
- Significant difference over two years one location.
- Significant difference over one year one location.

200300155

Table 2B

## 2002 Laboratory Morphological Data

(BT: 8/4/06)

| Cultivar     | Lemma Length (mm) | Lemma Width (mm) | Lemma Awn Length (mm) | Palea Length (mm) | Palea Width (mm) | Glume Length (mm) | Florets per Spikelet | Spikelet Length (mm) | Length of Longest Whorl (mm) | Distance Between Lower Most Whorls (mm) | Number of Spikelets on the Longest Whorl | Spikelets per Panicle | Length of Spike From Lower Most Whorl to Tip (mm) |
|--------------|-------------------|------------------|-----------------------|-------------------|------------------|-------------------|----------------------|----------------------|------------------------------|---|--|-----------------------|---|
| 88550<br>BE4 | 6.34              | 1.33             | 1.06                  | 6.13              | 1.15             | 4.40              | 4.73                 | 10.23                | 75.33                        | 47.87                                   | 12.72                                    | 78.33                 | 20.03   |
| BE1          | 6.43              | 1.27             | 0.94                  | 6.14              | 1.12             | 4.43              | 4.47                 | 10.10                | 75.53                        | 49.10                                   | 15.60                                    | 94.33                 | 21.43   |
| BE2          | 6.27              | 1.27             | 1.00                  | 6.16              | 1.15             | 4.69              | 4.53                 | 10.23                | 71.17                        | 48.40                                   | 12.17                                    | 76.33                 | 20.17   |
| KY-31        | 7.23              | 1.37             | 0.89                  | 6.98              | 1.23             | 5.23              | 4.88                 | 11.43                | 98.40                        | 64.57                                   | 15.80                                    | 114.67                | 30.13   |
| Rebel II     | 6.92              | 1.43             | 1.34                  | 6.68              | 1.26             | 5.12              | 4.93                 | 11.57                | 100.43                       | 61.90                                   | 16.08                                    | 102.67                | 27.00   |
| Plantation   | 6.59              | 1.30             | 0.80                  | 6.28              | 1.12             | 4.64              | 4.28                 | 9.87                 | 78.77                        | 50.20                                   | 16.13                                    | 98.33                 | 22.07   |
| LSD (.05)    | 0.31              | 0.09             | 0.21                  | 0.20              | 0.06             | 0.31              | 0.55                 | 0.64                 | 11.42                        | 5.58                                    | 2.81                                     | 10.71                 | 2.14  |
| C.V.         | 3.42              | 5.07             | 15.21                 | 2.28              | 3.87             | 4.66              | 8.02                 | 4.30                 | 9.95                         | 7.65                                    | 13.49                                    | 8.42                  | 6.75  |

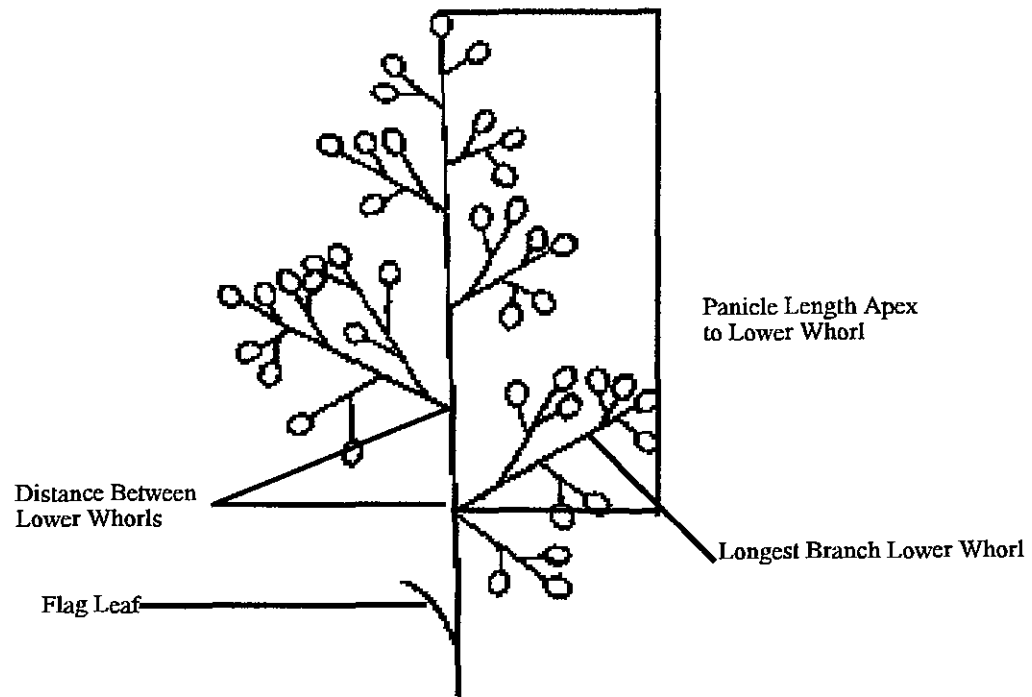
(BT: 8/4/06)

Measurements taken in Albany, Oregon; 3 reps; 20 plants/rep = 60 data points.

- Cultivar under evaluation.
- Significant difference over two years one location.
- Significant difference over one year one location.

20030615

### Panicle Type Inflorescence



**Illustration 1.**

Table 3A

2001 Additional Morphological Measurements of the Panicle

| Cultivar   | Anther Color % Purple | Panicle Color % Purple | Lemma Hairs % Present | Palea Hairs % Present | Lemma Awn % Present | Glume Color % Purple | Panicle Orientation % Nodding | Panicle Shape % Ovate | Panicle Type % Open | Branch Lower Whorl =1 | Branch Lower Whorl =2 | Branch Lower Whorl =3 | Branch Lower Whorl =4 | Seed Weight mg/1,000 Seeds |
|------------|-----------------------|------------------------|-----------------------|-----------------------|---------------------|----------------------|-------------------------------|-----------------------|---------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------------|
| SR8550 BE4 | 0                     | 12                     | 98                    | 100                   | 100                 | 2                    | 0                             | 48                    | 52                  | 30                    | 30                    | 70                    | 0                     | 2485                       |
| BE1        | 0                     | 17                     | 95                    | 100                   | 100                 | 2                    | 0                             | 87                    | 13                  | 10                    | 10                    | 88                    | 2                     | 2217                       |
| BE2        | 2                     | 22                     | 100                   | 100                   | 100                 | 2                    | 2                             | 62                    | 38                  | 12                    | 12                    | 83                    | 5                     | 2992                       |
| KY-31      | 0                     | 7                      | 97                    | 100                   | 100                 | 0                    | 12                            | 82                    | 18                  | 10                    | 10                    | 82                    | 8                     | 3345                       |
| Rebel II   | 0                     | 15                     | 98                    | 98                    | 100                 | 0                    | 10                            | 83                    | 17                  | 13                    | 13                    | 87                    | 0                     | 2543                       |
| Plantation | 0                     | 10                     | 98                    | 100                   | 100                 | 0                    | 0                             | 78                    | 22                  | 13                    | 13                    | 83                    | 4                     | 2584                       |

Measurements taken in Albany, Oregon; 3 reps; 20 plants/rep = 60 data points.

■ Cultivar under evaluation.

Table 3B

2002 Additional Morphological Measurements of the Panicle

| Cultivar   | Anther Color % Purple | Panicle Color % Purple | Lemma Hairs % Present | Palea Hairs % Present | Lemma Awn % Present | Glume Color % Purple | Panicle Orientation % Nodding | Panicle Shape % Ovate | Panicle Type % Open | Branch Lower Whorl =1 | Branch Lower Whorl =2 | Branch Lower Whorl =3 | Branch Lower Whorl =4 | Seed Weight mg/1,000 Seeds |
|------------|-----------------------|------------------------|-----------------------|-----------------------|---------------------|----------------------|-------------------------------|-----------------------|---------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------------|
| SR8550 BE4 | 8                     | 17                     | 95                    | 100                   | 100                 | 2                    | 0                             | 60                    | 40                  | 22                    | 77                    | 2                     | 0                     | 2471                       |
| BE1        | 0                     | 23                     | 98                    | 100                   | 100                 | 2                    | 0                             | 43                    | 57                  | 30                    | 70                    | 0                     | 0                     | 2212                       |
| BE2        | 3                     | 27                     | 95                    | 100                   | 100                 | 5                    | 0                             | 28                    | 72                  | 45                    | 52                    | 2                     | 0                     | 2996                       |
| KY-31      | 5                     | 13                     | 97                    | 100                   | 100                 | 3                    | 0                             | 2                     | 98                  | 23                    | 73                    | 3                     | 0                     | 3348                       |
| Rebel II   | 5                     | 30                     | 98                    | 100                   | 100                 | 10                   | 0                             | 23                    | 77                  | 28                    | 72                    | 0                     | 0                     | 2562                       |
| Plantation | 7                     | 30                     | 98                    | 100                   | 100                 | 2                    | 0                             | 38                    | 62                  | 35                    | 63                    | 2                     | 0                     | 2596                       |

Measurements taken in Albany, Oregon; 3 reps; 20 plants/rep = 60 data points.

■ Cultivar under evaluation.

200300155

Table 4A

2001 Additional Morphological Measurements of the Leaf Blade

| Cultivar                    | Growth Habit at Anthesis % Prostrate | Growth Habit at Anthesis % Semi-Prostrate | Growth Habit at Anthesis % Erect | Anthocyanin Present in the Leaf Blade % Purple | Leaf Blade Margin Roughness to the Touch % Smooth | Leaf Blade Margin Roughness to the Touch % Semi-Rough | Leaf Blade Margin Roughness to the Touch % Rough | Leaf Blade Margin Hairs % Present | Leaf Sheath Auricle Hairs % Present | Rhizomes % Present | Node Color % Distinct |
|-----------------------------|--------------------------------------|---|----------------------------------|--|---|---|--|-----------------------------------|-------------------------------------|--------------------|-----------------------|
| (BT:8/4/06) SR8550<br><BE4> | 7                                    | 42  | 52                               | 0  | 53  | 35  | 12   | 90                                | 83                                  | 0                  | 0                     |
| BE1                         | 7                                    | 65  | 28                               | 0  | 67  | 27  | 7  | 97                                | 93                                  | 0                  | 10                    |
| BE2                         | 5                                    | 73  | 22                               | 0  | 43  | 37  | 20   | 87                                | 85                                  | 0                  | 5                     |
| KY-31                       | 40                                   | 50  | 10                               | 0  | 70  | 15  | 15   | 80                                | 92                                  | 0                  | 48                    |
| Rebel II                    | 10                                   | 77  | 13                               | 0  | 83  | 12  | 5  | 87                                | 85                                  | 0                  | 13                    |
| Plantation                  | 7                                    | 63  | 30                               | 0  | 40  | 32  | 28   | 82                                | 87                                  | 0                  | 2                     |

Measurements taken in Albany, Oregon; 3 reps; 20 plants/rep = 60 data points.

■ Cultivar under evaluation.

Table 4B

2002 Additional Morphological Measurements of the Leaf Blade

| Cultivar                    | Growth Habit at Anthesis % Prostrate | Growth Habit at Anthesis % Semi-Prostrate | Growth Habit at Anthesis % Erect | Anthocyanin Present in the Leaf Blade % Purple | Leaf Blade Margin Roughness to the Touch % Smooth | Leaf Blade Margin Roughness to the Touch % Semi-Rough | Leaf Blade Margin Roughness to the Touch % Rough | Leaf Blade Margin Hairs % Present | Leaf Sheath Auricle Hairs % Present | Rhizomes % Present | Node Color % Distinct |
|-----------------------------|--------------------------------------|---|----------------------------------|--|---|---|--|-----------------------------------|-------------------------------------|--------------------|-----------------------|
| (BT:8/4/06) SR8550<br><BE4> | 7                                    | 42  | 52                               | 0  | 50  | 27  | 23   | 83                                | 98                                  | 0                  | 2                     |
| BE1                         | 7                                    | 65  | 28                               | 0  | 49  | 22  | 29   | 77                                | 87                                  | 0                  | 13                    |
| BE2                         | 5                                    | 73  | 22                               | 0  | 48  | 30  | 22   | 82                                | 90                                  | 0                  | 17                    |
| KY-31                       | 40                                   | 50  | 10                               | 0  | 75  | 13  | 12   | 80                                | 77                                  | 0                  | 40                    |
| Rebel II                    | 10                                   | 77  | 13                               | 0  | 77  | 13  | 10   | 87                                | 92                                  | 0                  | 23                    |
| Plantation                  | 7                                    | 63  | 30                               | 0  | 34  | 17  | 49   | 88                                | 88                                  | 0                  | 8                     |

Measurements taken in Albany, Oregon; 3 reps; 20 plants/rep = 60 data points.

■ Cultivar under evaluation.

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

**EXHIBIT E**  
**STATEMENT OF THE BASIS OF OWNERSHIP**

1. NAME OF APPLICANT(S) *Rutgers The State University of New Jersey*  
*Rutgers University - Cook College*  
*c/o Dr. William Meyers*  
*(BT: 8/4/2006)*

2. TEMPORARY DESIGNATION  
OR EXPERIMENTAL NUMBER  
BE-4

3. VARIETY NAME  
*SR8550*  
*(BT: 8/4/06)*

4. ADDRESS (Street and No., or R.F.D. No., City, State, and Zip, and Country)

Foran Hall  
Plant Biology & Pathology  
59 Dudley Road  
New Brunswick, NJ 08901

5. TELEPHONE (Include area code)  
732 - 932 - 9711 ext. 160

6. FAX (Include area code)  
732 - 932 - 9441

7. PVPO NUMBER

*200300155*

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain.

☒ YES

☐ NO

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? If no, give name of country.

☒ YES

☐ NO

10. Is the applicant the original owner?

If no, please answer one of the following:

☒ YES

☐ NO

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?

☒ YES

☐ NO

If no, give name of country

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?

☒ YES

☐ NO

If no, give name of country

11. Additional explanation on ownership (If needed, use the reverse for extra space):

**PLEASE NOTE:**

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

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